LIST OF CURRENT CLAIMS

1 (Currently Amended). A data-transmission system that sends transmission data, which has been encrypted by using at least one conversion constant from among a first conversion constant, a second conversion constant, and a third conversion constant, from an apparatus on [[the]] a sending side to an apparatus on [[the]] a receiving side, wherein

said apparatus on the sending side comprises:

a conversion-constant selection means [[of]] for selecting said first conversion constant, said second conversion constant, and said third conversion constant;

an encryption means [[of]] for using said second conversion constant, or said second conversion constant and said third conversion constant, to encrypt said transmission data to a first substitute value, and for using said first conversion constant, or said first conversion constant and said third conversion constant, to encrypt said transmission data to a second substitute value;

a first-signal-generation means [[of]] for generating a first signal that contains said first substitute value and said first conversion constant;

a memory means [[of]] for storing a pattern-conversion constant that corresponds to said third conversion constant;

a second-signal-generation means [[of]] for generating a second signal that contains said second substitute value, said second conversion constant and said pattern-conversion constant; and

a transmission means [[of]] for sending said first signal to said apparatus on the receiving side and for sending said second signal to a relay apparatus;

said relay apparatus comprises:

a memory means [[of]] for storing [[a]] said third conversion constant that corresponds to said pattern-conversion constant;

a signal-generation means for receiving ~~unit that receives~~ said second signal, and for converting ~~converts~~ said pattern-conversion constant contained in said second signal to said third conversion constant to generate a third (second') signal; and

a transmission means [[of]] for sending said third ~~second'~~ signal to said apparatus on the receiving side; and

said apparatus on the receiving side comprises:

a reading means [[of]] for receiving said first signal from said apparatus on the sending side and said third ~~second'~~ signal from said relay apparatus, and for reading said first substitute value and said first conversion constant from said first signal, and for reading said second substitute value, said second conversion constant and said third conversion constant from said third ~~second'~~ signal;

a decoding means [[of]] for using said conversion constants that were used in encrypting said first substitute value and said second substitute value to decode said first substitute value and said second substitute value to first decoded data and second decoded data, respectively; and

an authentication means [[of]] for authenticating said first signal and said third ~~second'~~ signal from said first decoded data and said second decoded data.

2 (Currently Amended). A data-transmission system that sends transmission data, which has been encrypted by two conversion constants from among a first conversion constant, a second conversion constant, a third conversion constant, and a fourth conversion constant, from an apparatus on [[the]] a sending side to an apparatus on [[the]] a receiving side, wherein

said apparatus on the sending side comprises:

a conversion-constant-selection means [[of]] for selecting said first conversion constant, said second conversion constant, said third conversion constant and said fourth conversion constant;

an encryption means [[of]] for using said second conversion constant and said fourth conversion constant to encrypt said transmission data to a first substitute value, and for using said first conversion constant and said third conversion constant to encrypt said transmission data to a second substitute value;

a memory means [[of]] for storing first and second pattern-conversion constants that respectively correspond to said third conversion constant and said fourth conversion constant;

a first-signal-generation means [[of]] for generating a first signal that contains ~~pattern-conversion constants that correspond to~~ said first substitute value, said first conversion constant, ~~and said third conversion constant~~ and said first pattern-conversion constant or ~~said fourth conversion constant~~ said second pattern-conversion constant;

a second-signal-generation means [[of]] for generating a second signal that contains ~~pattern-conversion constants that correspond to~~ said second substitute value, said second conversion constant, ~~and said third conversion constant~~ and said first pattern-conversion constant or ~~said fourth conversion constant~~ said second pattern-conversion constant that is not contained in said first signal; and

a transmission means [[of]] for sending said first signal to a first relay apparatus and sending said second signal to a second relay apparatus;

said first relay apparatus comprises:

a memory means [[of]] for storing [[a]] said third conversion constant or said fourth conversion constant that respectively corresponds to said first or second pattern-conversion constant;

a signal-generation means [[of]] for receiving said first signal and for converting the first or second pattern-conversion constant contained in that the first signal to said third conversion constant or said fourth conversion constant to generate a third (first') signal; and

a transmission means [[of]] for sending said third first' signal to said apparatus on the receiving side;

said second relay apparatus comprises:

a memory means [[of]] for storing [[a]] said third conversion constant or said fourth conversion constant that respectively corresponds to said first or second pattern-conversion constant,

a signal-generation means [[of]] for receiving said second signal and for converting said first or second pattern-conversion constant contained in that the second signal to said third conversion constant or said fourth conversion constant to generate a fourth (second') signal; and

a transmission means [[of]] for sending said fourth second' signal to said apparatus on the receiving side; and

said apparatus on the receiving side comprises:

a reading means [[of]] for receiving said third first' signal and said fourth second' signal and for reading said first substitute value, said first conversion constant and said third conversion constant or said fourth conversion constant from said third first' signal, and for reading said second substitute value, said second conversion constant and said third conversion constant or said fourth conversion constant from said fourth second' signal;

a decoding means [[of]] for using the conversion constants that were used for encrypting said first substitute value and said second substitute value to decode said first substitute value and said second substitute value to first decoded data and second decoded data, respectively; and

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an authentication means [[of]] for performing authentication of said third ~~first~~ signal and said fourth ~~second~~ signal from said first decoded data and said second decoded data.

3 (Currently Amended). A data-transmission system that sends transmission data, which has been encrypted using at least one conversion constant from among a first conversion constant, a second conversion constant, and a third conversion constant, from an apparatus on [[the]] a sending side to an apparatus on [[the]] a receiving side, wherein

said apparatus on the sending side comprises:

a conversion-constant-selection means [[of]] for selecting said first conversion constant, said second conversion constant, and said third conversion constant;

an encryption means [[of]] for using said second conversion constant, or said second conversion constant and said third conversion constant to encrypt said transmission data to a first substitute value, and for using said first conversion constant, or said first conversion constant and said third conversion constant to encrypt said transmission data to a second substitute value;

a first-signal-generation means [[of]] for generating a first signal that contains said first substitute value and said first conversion constant;

a memory means [[of]] for storing a pattern-conversion constant that corresponds to said third conversion constant;

a second-signal-generation means [[of]] for generating a second signal that contains said second substitute value, said second conversion constant and said pattern-conversion constant; and

a transmission means [[of]] for sending said first signal and said second signal to said apparatus on the receiving side; and

said apparatus on the receiving side comprises:

a reading means [[of]] for receiving said first signal and said second signal, and for reading said first substitute value and said first conversion constant from said first signal, and for reading said second substitute value, said second conversion constant, and said pattern-conversion constant from said second signal;

a memory means [[of]] for storing [[a]] said third conversion constant that corresponds to said pattern-conversion constant;

a reading means [[of]] for reading said third conversion constant from said read pattern-conversion constant;

a decoding means [[of]] for using the conversion constants that were used to encrypt said first substitute value and said second substitute value to decode said first substitute value and said second substitute value to first decoded data and second decoded data, respectively; and

an authentication means [[of]] for authenticating said first signal and said second signal from said first decoded data and second decoded data.

4 (Currently Amended). The data-transmission system of claim 1 or claim 3 wherein said encryption means uses said second conversion constant and third conversion constant to encrypt said transmission data to [[a]] said first substitute value, and uses said first conversion constant and said third conversion constant to encrypt said transmission data to [[a]] said second substitute value.

5 (Currently Amended). The data-transmission system of claim 1 or claim 3 wherein said encryption means uses said second conversion constant to encrypt said transmission data to [[a]] said first substitute value, and uses said first conversion constant and said third conversion constant to encrypt said transmission data to [[a]] said second substitute value.

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6 (Currently Amended). The data-transmission system of claim 1 or claim 3 wherein said encryption means uses said second conversion constant and third conversion constant to encrypt said transmission data to [[a]] said first substitute value, and uses said first conversion constant to encrypt said transmission data to [[a]] said second substitute value.

7 (Currently Amended). The data-transmission system of any one of the claims 1 to 3 wherein said apparatus on the receiving side further comprises a drive-signal-transmission means [[of]] for sending a drive signal for driving an external-drive apparatus based on said first decoded data and second decoded data.

8 (Original). The data-transmission system of any one of the claims 1 to 3 wherein said authentication means performs said authentication when said first decoded data and said second decoded data match.

9 (Original). The data-transmission system of claim 1 or claim 2 wherein said apparatus on the sending side, said relay apparatus and said apparatus on the receiving side are connected to a communications network that includes the Internet.

10 (Original). The data-transmission system of claim 3 wherein said apparatus on the sending side and said apparatus on the receiving side send or receive signals by an infrared signal method, wireless signal method, optical communication method or wired communication method.

11 (Currently Amended). A data-transmission method that sends transmission data, which has been encrypted using at least one conversion constant from among a first conversion constant, a second conversion constant, and a third conversion

constant, from an apparatus on [[the]] a sending side to an apparatus on [[the]] a receiving side, wherein

said apparatus on the sending side comprises:

a step of selecting said first conversion constant, said second conversion constant and said third conversion constant;

an encryption step of using said second conversion constant, or said second conversion constant and said third conversion constant to encrypt said transmission data to a first substitute value, and using said first conversion constant, or said first conversion constant and said third conversion constant to encrypt said transmission data to a second substitute value;

a first-signal-generation step of generating a first signal that contains said first substitute value and said first conversion constant;

a second-signal-generation step of generating a second signal that contains said second substitute value, said second conversion constant and a pattern-conversion constant that corresponds to said third conversion constant; and

a first transmission step of sending said first signal to said apparatus on the receiving side and said second signal to a relay apparatus;

said relay apparatus comprises:

a conversion step of receiving said second signal, and converting the pattern-conversion constant contained in said second signal to said corresponding third conversion constant to generate a third (second') signal; and

a second transmission step of sending said third second' signal to said apparatus on the receiving side; and

said apparatus on the receiving side comprises:

a reading step of receiving said first signal from said apparatus on the sending side and said third second' signal from said relay apparatus, and

reading said first substitute value and said first conversion constant from said first signal, and reading said second substitute value, said second conversion constant and said third conversion constant from said third second‑ signal;

a decoding step of using the conversion constants that were used in encrypting said first substitute value and said second substitute value to decode said first substitute value and said second substitute value to first decoded data and second decoded data, respectively; and

an authentication step of authenticating said first signal and said third second‑ signal from said first decoded data and said second decoded data.

12 (Currently Amended). A data-transmission method that sends transmission data, which has been encrypted using two conversion constants from among a first conversion constant, a second conversion constant, a third conversion constant, and a fourth conversion constant, from an apparatus on [[the]] a sending side to an apparatus on [[the]] a receiving side, wherein

said apparatus on the sending side comprises:

a selection step of selecting said first conversion constant, said second conversion constant, said third conversion constant, and said fourth conversion constant;

an encryption step of using said second conversion constant and said fourth conversion constant to encrypt said transmission data to a first substitute value, and using said first conversion constant and said third conversion constant to encrypt said transmission data to a second substitute value;

a first-signal-generation step of generating a first signal that contains said first substitute value, said first conversion constant, and a first pattern-conversion constant that corresponds to said third conversion constant or said fourth conversion constant;

a second-signal-generation step of generating a second signal that contains said second substitute value, said second conversion constant, and a second pattern-conversion constant that corresponds to said third conversion constant or said fourth conversion constant that is not contained in said first signal; and

a first transmission step of sending said first signal to a first relay apparatus, and sending said second signal to a second relay apparatus;

said first relay apparatus and said second relay apparatus comprise:

a conversion step of receiving said first signal or said second signal and converting said first or second pattern-conversion constant contained in that the respective first or second signal to the corresponding said third conversion constant or said fourth conversion constant to generate a third (first') signal or fourth (second') signal; and

a second transmission step of sending said third first' signal or said fourth second' signal to said apparatus on the receiving side; and

said apparatus on the receiving side comprises:

a reading step of receiving said third first' signal and said fourth second' signal, and reading said first substitute value, said first conversion constant, and said third conversion constant or said fourth conversion constant from said third first' signal, and reading said second substitute value, said second conversion constant, and said third or said fourth conversion constant from said fourth second' signal;

a decoding step of using the conversion constants that were used in encrypting said first substitute value and said second substitute value to decode said first substitute value and said second substitute value to first decoded data and second decoded data, respectively; and

an authentication step of authenticating said third first' signal and said fourth second' signal from said first decoded data and said second decoded data.

13 (Currently Amended). A data-transmission method that sends transmission data, which has been encrypted using at least one conversion constant from among a first conversion constant, a second conversion constant, and a third conversion constant, from an apparatus on [[the]] a sending side to an apparatus on [[the]] a receiving side, wherein

said apparatus on the sending side comprises:

a step of selecting said first conversion constant, said second conversion constant, and said third conversion constant;

an encryption step of using said second conversion constant or said second conversion constant and said third conversion constant to encrypt said transmission data to a first substitute value, and using said first conversion constant or said first conversion constant and said third conversion constant to encrypt said transmission data to a second substitute value;

a first-signal-generation step of generating a first signal that contains said first substitute value and said first conversion constant;

a second-signal-generation step of generating a second signal that contains said second substitute value, said second conversion constant, and a pattern-conversion constant that corresponds to said third conversion constant; and

a transmission step of sending said first signal and said second signal to said apparatus on the receiving side; and

said apparatus on the receiving side comprises:

a reading step of receiving said first signal and said second signal, and reading said first substitute value and said first conversion constant from said first signal, and reading said second substitute value, said second conversion constant, and said pattern-conversion constant from said second signal;

a conversion-constant-acquisition step of acquiring said third conversion constant that corresponds to said read pattern-conversion constant;

a decoding step of using the conversion constants that were used to encrypt said first substitute value and said second substitute value to decode said first substitute value and said second substitute value to first decoded data and second decoded data, respectively; and

an authentication step of authenticating said first signal and said second signal from said first decoded data and said second decoded data.

14 (Currently Amended). The data-transmission method of claim 11 or claim 13 wherein in said encryption step said second conversion constant and said third conversion constant are used to encrypt said transmission data to said first substitute value, and said first conversion constant and said third conversion constant are used to encrypt said transmission data to said second substitute value.

15 (Original). The data-transmission method of claim 11 or claim 13 wherein in said encryption step, said second conversion constant is used to encrypt said transmission data to said first substitute value, and said first conversion constant and said third conversion constant are used to encrypt said transmission data to said second substitute value.

16 (Original). The data-transmission method of claim 11 or claim 13 wherein in said encryption step, said second conversion constant and said third conversion constant are used to encrypt said transmission data to said first substitute value, and said first conversion constant is used to encrypt said transmission data to said second substitute value.

17 (Currently Amended). The data-transmission method of any one of the claims 11 to 13 wherein after said authentication step, said apparatus on the receiving side further comprises a drive-signal-transmission step of sending a drive signal for

driving an external-drive apparatus based on said first decoded data or said second decoded data.

18 (Original). The data-transmission method of any one of the claims 11 to 13 wherein in said authentication step, authentication is performed when said first decoded data matches said second decoded data.

19 (Currently Amended). An apparatus that sends data that has been encrypted using at least one conversion constant from among a first conversion constant, a second conversion constant, and a third conversion constant comprising:

a memory unit that stores at least a pattern-conversion constant constants that corresponds to said third conversion constant constants;

a control unit, which performs

a conversion-constant-selection process of selecting said first conversion constant, said second conversion constant, and said third conversion constant,

an encryption process of using said second conversion constant, or said second conversion constant and said third conversion constant to encrypt said transmission data to a first substitute value, and using uses said first conversion constant, or said first conversion constant and said third conversion constant to encrypt said transmission data to a second substitute value,

a first-signal-generation process of generating a first signal that contains said first substitute value and said first conversion constant,

a second-signal-generation process of generating a second signal that contains said second substitute value, said second conversion constant and said pattern-conversion constant that corresponds to said third conversion constant, and

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a transmission process of sending the first signal and second signal; and

a transmission unit that sends said first signal and said second signal ~~to the outside~~.

20 (Currently Amended). The apparatus of claim 19 wherein said control unit uses said second conversion constant and said third conversion constant to encrypt said transmission data to [[a]] said first substitute value, and uses said first conversion constant and said third conversion constant to encrypt said transmission data to [[a]] said second substitute value.

21 (Currently Amended). The apparatus of claim 19 wherein said control unit uses said second conversion constant to encrypt said transmission data to [[a]] said first substitute value, and uses said first conversion constant and said third conversion constant to encrypt said transmission data to [[a]] said second substitute value.

22 (Currently Amended). The apparatus of claim 19 wherein said control unit uses said second conversion constant and said third conversion constant to encrypt said transmission data to [[a]] said first substitute value, and uses said first conversion constant to encrypt said transmission data to [[a]] said second substitute value.

23 (Currently Amended). An apparatus that sends data that has been encrypted using two conversion constants from among a first conversion constant, a second conversion constant, a third conversion constant, and a fourth conversion constant, and comprising:

a memory unit that stores at least first and second pattern-conversion constants that correspond to the third and fourth conversion constants;

a control unit, which performs

a conversion-constant-selection process of selecting said first conversion constant, said second conversion constant, said third conversion constant, and said fourth conversion constant,

an encryption process of using said second conversion constant and said fourth conversion constant to encrypt said transmission data to a first substitute value, and using ~~uses~~ said first conversion constant and said third conversion constant to encrypt said transmission data to a second substitute value,

a first-signal-generation process of generating a first signal that contains said first substitute value, said first conversion constant, and the first or second pattern-conversion constant that respectively corresponds to said third conversion constant or said fourth conversion constant, and

a second-signal-generation process of generating a second signal that contains said second substitute value, said second conversion constant, and the first or second pattern-conversion constant that respectively corresponds to said third conversion constant or said fourth conversion constant that is not contained in said first signal; and

a transmission unit that sends said first signal and said second ~~signal to the outside~~.

24 (Currently Amended). An apparatus that transfers a signal that contains pattern-conversion constants corresponding to the conversion constants that are used in encrypting the transmission data, and comprising:

a memory unit that stores the pattern-conversion constants that correspond ~~corresponds~~ to said conversion constants;

a transmission/reception unit that sends and receives said signal; and

a control unit that performs:

a signal-generation process of converting said pattern-conversion constants contained in said received signal to said conversion constants to convert said signal, and

a process of transferring said converted signal.

25 (Currently Amended). An apparatus that receives a first signal and a second' signal that each contain transmission data that was encrypted using at least one conversion constant from among a first conversion constant, a second conversion constant, and a third conversion constant, and that decodes the transmission data, and wherein the apparatus comprises:

a receiving unit that receives said first signal and said second' signal, wherein

said first signal contains a first substitute value, which is said transmission data that has been encrypted using said second conversion constant, or said second conversion constant and said third conversion constant, and said first conversion constant, and

said second' signal contains, a second substitute value, which is said transmission data that has been encrypted using said first conversion constant, or said first conversion constant and said third conversion constant, said second conversion constant and said third conversion constant; and

a control unit that performs:

a process of reading said first substitute value and said first conversion constant from said first signal, and reading said second substitute value, said second conversion constant and said third conversion constant from said second' signal;

a decoding process of using the conversion constants that were used for encrypting said first substitute value and said second substitute value to decode said first substitute value and said second substitute value to first decoded data and second decoded data, respectively; and

an authentication process of authenticating said first signal and said second' signal from said first decoded data and said second decoded data.

26 (Currently Amended). An apparatus that receives a first' signal and a second' signal, which contain transmission data that has been encrypted using two conversion constants from among a first conversion constant, a second conversion constant, a third conversion constant, and a fourth conversion constant, and that decodes the transmission data, ~~and~~ the apparatus comprising:

a reception unit that receives said first' signal and said second' signal wherein

said first signal' contains a first substitute value, which is said transmission data that has been encrypted using said second conversion constant and said fourth conversion constant, said first conversion constant and said third conversion constant or said fourth conversion constant, and

said second' signal contains a second substitute value, which is said transmission data that has been encrypted using said first conversion constant and said third conversion constant, said second conversion constant and said third conversion constant or said fourth conversion constant that is not contained in said first' signal; and

a control unit that performs:

a reading process of reading said first substitute value, said first conversion constant and said third conversion constant or said fourth conversion constant from ~~received~~ said first' signal, and reading said second substitute value, said second conversion constant and said third conversion constant or said fourth conversion constant from the ~~received~~ said second' signal;

a decoding process of using the conversion constants that were used to encrypt said first substitute value and said second substitute value to decode said first substitute value and said second substitute value to first decoded data and second decoded data, respectively: and

an authentication process of authenticating said first' signal and said second' signal from said first decoded data and said second decoded data.

27 (Currently Amended). An apparatus that receives a first signal and a second signal that contains transmission data that has been encrypted using at least one conversion constant from among a first conversion constant, a second conversion constant, and a third conversion constant, and that decodes the that transmission data, the apparatus and comprising:

a memory unit that stores pattern-conversion constants that correspond to said conversion constants;

a reception unit that receives said first signal and said second signal, wherein

said first signal contains a first substitute value that was encrypted using said second conversion constant or said second conversion constant and said third conversion constant, and the first conversion constant, and

said second signal contains a second substitute value that was encrypted using said first conversion constant or said first conversion constant and said third conversion constant, said second conversion constant, and a pattern-conversion constant that corresponds to said third conversion constant; and

a control unit that performs:

a reading process of reading said first substitute value and said first conversion constant from said first signal, and reading said second substitute value, said second conversion constant and said pattern-conversion constant from said second signal;

an acquisition process of acquiring said third conversion constant from said read pattern-conversion constant;

a decoding process of using the conversion constants that were used to encrypt said first substitute value and said second substitute value to decode

said first substitute value and said second substitute value to first decoded data and second decoded data, respectively; and

an authentication process of authenticating said first signal and said second signal from said first decoded data and said second decoded data.

28 (Original). The apparatus of any one of the claims 25 to 27 wherein said control unit sends a drive signal for driving an external-drive apparatus based on said first decoded data or said second decoded data.

29 (Original). The apparatus of any one of the claims 25 to 27 wherein said control unit performs said authentication when said first decoded data and said second decoded data match.